has been made for complying with the requirements of the state's air and water pollution control and other environmental laws...", and (2) that "adequate provision has been made... to assure there will be no undue adverse effect on..." natural resources. In reviewing individual projects within its jurisdiction, the Commission considers air quality issues, but relies heavily on DEP review under other air quality laws, especially on larger projects.

Air Resource Issues

Most issues associated with air resources revolve around uses of air (principally emission of air pollutants) and their effects on other valued resources and ecosystems. There are no significant issues regarding air resources that are within the Commission's realm of authority. Nevertheless, the Commission recognizes the importance of understanding and tracking the effects of air pollution on other valued resources, such as lakes and forests.

Coastal Resources

While most of the Commission's jurisdiction is located well inland, a small portion borders the coast. Two mainland townships, Trescott and Edmunds, have considerable ocean frontage between Machias and Eastport. The jurisdiction's most significant coastal resources, however, are 308 islands, located mostly in the mid-coastal part of the state. These resources include two island plantations, 208 named islands and 98 unnamed islands and ledges, and represent about 10% of the total number of coastal islands in Maine.

Although the total land area of these islands is small in relation to the rest of the jurisdiction, they warrant extended discussion and special consideration for several reasons. First, they possess outstanding economic, recreational, cultural, aesthetic and natural resource values, and are a defining feature of Maine's magnificent coastline. Second, their natural and human environments differ significantly from those of mainland areas and present a distinct set of planning and land use issues. Third, as coastal areas, many islands are attractive locations for development, and are likely to experience development pressure during the 1990's.

Most of the islands in LURC's jurisdiction can be cast into four geographic groups. The Muscungus Bay group is located at the mouth of the Medomak River near Bristol. The Muscle Cove group is located east of St. George. The East Penobscot Bay Group is situated west of Deer Isle. The outer island group is composed of islands more than five miles from the mainland.

Physical and Natural Characteristics

Many unique features of islands are a result of their isolation, small size and exposure to the marine environment. Surrounded by ocean, islands have evolved separately from mainland areas, resulting in an environment that is distinctive yet sensitive to natural disturbance. The small size of the islands – the largest within the jurisdiction is only 1,000 acres – and their exposure also make them vulnerable to the constant stresses of winds, waves, tides, salt, ice and animals, and to human activities. Generally, the larger the island, the more diverse its ecosystem, the more varied and numerous its plant and animal life, and the more tolerant it is of disturbance.

The island climate is strongly influenced by the ocean, which acts as a moderating agent. Summers are generally cooler and wetter than on the mainland, with many more foggy days. This cooler climate allows for the growth of some boreal and sub-arctic plant species that are found further to the north on the mainland. Island winters, on the other hand, are warmer and rainier than on the mainland, allowing some plant species to extend their range northward.

Island soils are typically acidic, infertile, and shallow, with a thin organic layer. Larger islands often contain marshes and bogs. Vegetative cover varies, depending on local conditions, soil type and past clearing practices. Most larger islands

are forested, and mature softwood stands predominate on many islands. The Maine islands, in fact, have the greatest concentration of old growth spruce left in the state.

Groundwater is the main source of freshwater on islands, but supplies are generally limited and sensitive to contamination and depletion. Island groundwater is generated entirely by rain and snowfall on the island itself, which percolates into the soil and rock. On islands, recharge of groundwater supplies can be greatly reduced by impervious surfaces that cause stormwater to flow to the ocean rather than infiltrate into the ground.

The interface between groundwater and the salt water that lies around and often under the island is always moving, depending on rainfall, tides, the characteristics of the groundwater supply and, if the island is populated, water usage. In many cases, island groundwater actually floats on top of a more dense layer of saltwater. High groundwater demand or the siting of wells near this interface can cause intrusions of saltwater into the groundwater supply.

Although larger islands may be comprised of a number of ecosystems, each island can be viewed as a distinct ecological unit with limited outside interactions and a unique set of local conditions. This means the ecology of individual islands varies considerably from that of the mainland and of other islands. It also means that the level of biological diversity and equilibrium on islands is more often a result of relative isolation than of continuous interactions with diverse ecological and human forces, as is the case on the mainland. Under these conditions, the introduction of new forces or activities can have a particularly dramatic impact on island ecology.

Island wildlife resources are typically less diverse and more fragile than on mainland areas. Species generally are limited to those that can swim or fly – or have been introduced, intentionally or unintentionally. A number of species fill ecological niches usually occupied by other animals on the mainland, and lack of predators has resulted in large communities of certain species. Many islands have an abundance of white tail deer as well as large populations of small rodents. As mentioned previously, larger islands tend to have more diverse and stable wildlife populations.

Coastal islands are especially valuable for the migratory and resident birds they harbor, some of which are endangered or threatened. Many islands within the jurisdiction provide essential nesting sites for a variety of significant seabirds including eider ducks, puffins, black guillemots, terns, leach's storm petrels, razorbill auks, cormorants and gulls. Shore and wading birds are abundant on islands, and a variety of terrestrial birds are also present. Two large raptor species, ospreys and bald eagles, often nest on islands, as do herons. A number of bald eagle nest sites have been identified on islands in the jurisdiction. The inventory and mapping of important bird nesting sites is still incomplete for many islands; this deficiency makes planning for their protection more difficult.

An initial impetus for use and settlement of islands was their proximity to fishery resources. A variety of fish species inhabit coastal island waters, with lobsters an especially important resource. Marine mammals also frequent nearby waters, and seal haulouts have been identified on a number of islands and ledges.

Land Use Characteristics

Up until the early 1900's, many Maine islands were intensively logged, farmed, grazed and quarried. Year-round island communities were common – in many cases, island settlement preceded that of mainland areas. Fishing was the economic mainstay of most island communities.

Depletion of island resources and declining markets in the late 19th and early 20th century led to abandonment of many islands, and today, the only islands within the jurisdiction with year-round populations are Monhegan and Matinicus Plantations. Most islands reverted to a relatively natural state. On many islands, there has been no significant timber harvesting or clearing since the early 1900's.

New development pressures, however, have the potential to significantly alter the island landscape. Improvements in transportation and growing recreational boat ownership make islands more accessible now than ever. While year-round settlement has declined, second-home development is a trend that is likely to accelerate in the 1990's.

Tourism and recreational use are also a growing trend on Maine islands, especially on larger, populated ones. Monhegan saw an especially dramatic increase in "daytrippers" during the 1980's, and visits to other islands probably grew as well. Boating, hiking, biking and nature study are the most popular island recreational activities.

On islands with mature stands of spruce and fir, timber harvesting is a likely future trend. These

operations can yield economic benefits and remove the fire danger posed by dead and dying trees. Yet harvests on islands have potential to be highly visible – especially on islands with significant changes in topography.

Land use and development activities on particular islands vary tremendously, so for planning purposes it is helpful to make distinctions among islands within the LURC jurisdiction.

Islands With Year-round Populations

Two island plantations, Monhegan and Matinicus, stand apart due to their year-round communities, large seasonal populations, full-range of services and regular ferry service. The communities that have evolved on these islands are unique – the combination of social, cultural and economic factors, vernacular architecture and distinctive physical environments has created a special character that can be considered an important resource in its own right.

Some of the land use and development characteristics of Monhegan and Matinicus parallel those of small mainland coastal towns. The constraints of size and isolation, however, have accentuated certain land use characteristics and resulted in some unique patterns and trends.

The harbor areas of both islands are the focus of most land use and development activities. Distinct villages have evolved on the slopes adjacent to the harbors. On Monhegan, almost all housing and businesses are located within or near the village area; on Matinicus, several additional concentrations of development are located along the island's interior road system.

Economic options on Matinicus and Monhegan are considerably more limited than those on the mainland; most working islanders are involved in fishing or tourism – or both. Fishing has historically been the economic mainstay of both islands, and it remains so, with wintertime lobstering the most profitable pursuit. The large influx of seasonal residents has long provided a boost to the local economies of both islands. On Monhegan, the recent increase in "daytrippers" and short-term visitors has spawned a newer form of tourism.

Development activity on both islands was generally light during the 1980's and early 1990's. The 1990 Census, in fact, showed a significant decrease in the number of year-round homes from the previous decade. Most of these dwellings were converted to seasonal use. Much development has been in the form of enlargement of existing buildings, conversions to commercial and lodging facilities, and occasional construction of new seasonal dwellings.

Other Islands

Approximately 15 islands in LURC jurisdiction have summer communities comprised of 5 or more residences. These are mostly larger islands (50 acres or more) and, with the exception of Metinic, Large Green and Criehaven islands, they are located relatively close to the mainland. Services on these islands are generally limited, with visitors dependent on their own transportation. Many of these islands once had thriving year-round communities, and some retain the character of those earlier times. Criehaven Township, also known as Ragged Island, was the last to have a significant year-round community. An intact harbor village remains, and during the summer months a number of fishermen return to live and work there.

Since 1985, the Commission has issued 15 permits for construction of seasonal homes on these islands. The most building permits have been issued on Metinic (6) and Eagle (4), with the rest scattered among the other islands.

A number of smaller islands in the jurisdiction (10-15) are developed with a few seasonal camps. Many of these islands are owned by a single owner or family. On some islands these seasonal dwellings get little use, leaving the island relatively undisturbed.

The vast majority of the islands are undeveloped; many remain under single ownership. A number are owned by trusts. Some have remained undeveloped due to their small size, environmental constraints, or inaccessibility; others simply due to owner choice. Many of these undeveloped islands are popular picnic or fishing spots; several are regularly used as stopovers by the Hurricane Island Outward Bound School and users of the Maine Island Trail.

LURC Regulatory Approach

The Commission applies the same land use regulations and standards to islands as to the mainland. Island zoning consists of a similar mix of Development, Management and Protection

Districts with one exception: the Maritime Development (D-MT) Subdistrict is available to protect water-dependent uses such as fishing from competing and incompatible uses. Monhegan Island has a D-MT Subdistrict on a segment of its waterfront.

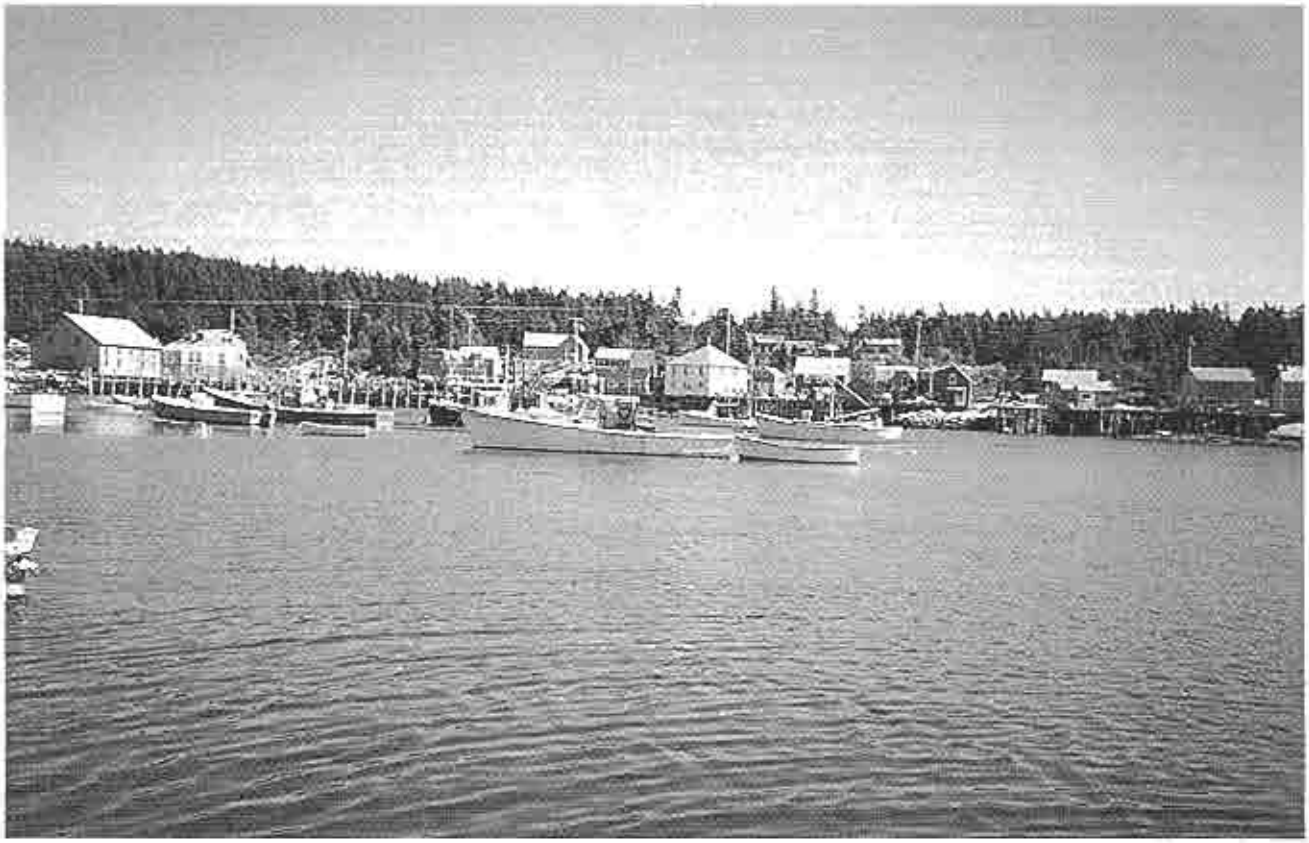
While the zoning pattern for Monhegan and Matinicus is relatively complex, it is quite simple for most undeveloped islands, often consisting of a General Management (M-GN) Subdistrict surrounded by a Shoreland Protection (P-SL) Subdistrict. Other subdistricts commonly found on islands include Residential Development (D-RS) zones, Fish and Wildlife (P-FW) Protection zones for protecting significant seabird nesting areas and Resource Plan (P-RP) zones for islands with special management needs. Due to the presence of diverse resources, a number of islands have overlapping zones; on Monhegan, several zones are overlaid to better protect multiple resources.

Coastal Resource Issues

The innate limits and sensitivity of the island environment become particularly important when considering islands with existing or proposed development. With a natural resource pool that is more circumscribed than mainland areas, the island environment is generally less forgiving of adverse impacts. Once an island resource such as groundwater or bird habitat has been degraded, options for mitigation are often limited and recovery, if possible, is slow.

The ability of land and water resources to support human activities and development is termed "carrying capacity." This concept is particularly relevant to island environments. The limited carrying capacities of most islands will be a major consideration in evaluating land use and development.

In discussing island issues, it is helpful to distinguish between the islands with year-round populations, those limited to seasonal populations and those with no development. A number of the issues facing year-round islands are present or emerging on other islands as well. To avoid repetition, these issues are given fullest treatment under the section on year-round islands.



Matinicus Island

Islands With Year-round Populations

Monhegan and Matinicus Plantations share a complex array of issues concerning both the human and natural environments on the islands. Some of the land use issues are at least partially addressed through the Commission's policies and regulations; other issues go well beyond the scope of LURC's powers and duties. Local information-gathering, education and nonregulatory actions can help to document and address many of these concerns. Monhegan's Inventory and Analysis (1992), developed by LURC with assistance from the Office of Community Development, provides an excellent basis for planning in the plantation, and could serve as a model for Matinicus.

On these island plantations, the concept of carrying capacity is particularly useful for several reasons. First, existing year-round and seasonal development already "consumes" a significant portion of available carrying capacity, making wise use of remaining capacity essential. Second, carrying capacity evaluation can be broadened to include impacts on island infrastructure and services, and on the character of the community as a whole.

While development activity on Monhegan and Matinicus has been relatively light in recent years, the limited carrying capacity of these islands requires that any development be evaluated carefully. Even one poorly sited building or new use can have a marked impact on natural and visual resources.

Increased tourism and recreational use can also deplete island carrying capacity. The rapid increase of daytrippers on Monhegan during the 1980's brought concerns that island trails, services and businesses would be unable to accommodate the influx. The amount of tourism is largely dependent on the availability of ferry service, and thus is not an easy impact to control.

The quantity and quality of drinking water is a primary carrying capacity issue on both these islands. Monhegan is served by a public system and private wells, Matinicus solely by private wells. While the amount of groundwater varies considerably based on local rainfall, increased water use, especially during summer months, has the potential to create shortages. On Monhegan, water shortages due to overuse of the island's meadow aquifer were reported in 1985 and the island has instituted a number of water conservation measures.

High water use can also cause saltwater intrusion problems, with potential for long-term degradation of the water supply. This is especially true of drilled wells located near the ocean, a preferred location for new homes. Water quality problems can also be caused by the septic systems that accompany new development or by malfunctioning existing systems. Unsuitable soils limit the ability of islands to accommodate subsurface waste disposal. Not only is the shallowness of island soils a problem, but the areas most apt to meet plumbing code requirements are coarse, excessively drained soils that provide easy access to groundwater.

State policy prohibits new overboard wastewater discharges, allowing existing overboard discharges to continue only if wastewater flows to the ocean are not increased. While this policy protects marine water quality, it requires discharging more treated wastewater into an island's groundwater as an alternative.

Although the ability of an island to support particular animal or plant species is largely dependent on natural and ecological factors, human activities can have direct detrimental impacts on these resources or indirect impacts by altering island ecology. The small size and isolation of islands accentuate these impacts. On mainland areas, development and human activities often reduce plant or animal communities in a particular area; on islands, these impacts may lead to the elimination of an entire community.

New development often results in the loss of wildlife habitat and disturbance of wildlife by increased human traffic and the introduction of household pets. Impact on nesting birds is the most critical issue. Some species have an extremely low tolerance for disturbance.

Plant communities are also sensitive to human activities and local management practices and decisions. Wildflowers abound, but their numbers and variety can be greatly reduced by hungry deer, picking by humans and foot traffic. At least one rare plant species, the Fringed Gentian, occurs on Monhegan.

Both Monhegan and Matinicus have significant populations of older spruce trees; on Monhegan, Cathedral Woods is an old growth red spruce stand with trees averaging 112 years in age. As trees on these islands continue to age, more aggressive forest management may be need-

ed to reduce fire danger, prevent the spread of disease and promote regeneration.

The issue of solid waste disposal relates to both environmental and community capacity. On the one hand, siting an island landfill is generally not feasible due to space constraints, poor soils, possible adverse groundwater impacts and costs. On the other hand, transporting waste to the mainland is expensive and logistically difficult. Recycling and composting have been embraced by both islands as a way of reducing solid waste generation.

Aesthetic concerns are often heightened on islands due to their small scale, exposed rocky coastline and prevalence of ocean views. This is especially true on Monhegan and Matinicus with their sloping topography and distinctive, historic village areas. While coastal villages can be aesthetically pleasing, newer buildings or additions can easily block existing ocean views or be in conflict with the prevailing architectural character.

To island residents and visitors, the visual and scenic qualities of islands are an important component of what makes them so special. Many other factors also contribute to island community character: close-knit social relationships, a slower pace of life, independence from the automobile, a seeming timelessness and lack of change, and a set of cultural traditions and rituals that have evolved over the years.

As islands are incrementally developed or more heavily visited by tourists, community character may be eroded long before environmental carrying capacity is surpassed. In some instances, these negative impacts can be minimized by proper management and by working to fit new developments into the community. Ultimately, however, a point is reached when even the most sensitively designed project begins to significantly erode community character.

As early centers of trade and settlement, islands are often rich in archaeological resources. A number of historic and prehistoric archaeological sites have been identified on islands within the jurisdiction, but survey work has generally been limited. New development has the potential to alter or obliterate unidentified sites.

Islands With Seasonal Populations

The islands within the jurisdiction with smaller seasonal populations are generally less-intensively developed and used than Monhegan and Matinicus. However, these islands may experience the most development pressure during the 1990's, especially those located close to mainland population centers.

Many of these islands already experience some of the issues faced by islands with year-round communities, and as seasonal use increases, more of these issues will arise. Groundwater use and septic impacts are particularly important considerations, especially on smaller islands. And as summer communities become larger, issues such as solid waste disposal will grow in importance.

Seasonal island development and tourism also have an impact on the mainland communities that serve as points of departure and arrival. Accommodating the parking needs of island visitors and summer residents is usually the most pressing problem. But other issues such as adequate boat mooring space and use of mainland services and facilities may also arise. Some of these issues can be addressed by good communication and coordination between island communities and their mainland neighbors.

Many seasonally populated or undeveloped islands were once more heavily developed and used, and they may be particularly rich in archaeological resources, especially vestiges of the more recent past. Abandoned quarries, cemeteries and foundations of early buildings are especially common. While many of these features may have only local historical importance, new development or neglect can result in the loss of significant sites that are an integral part of an island's heritage.

A number of seasonally developed islands are sites of mapped essential habitat for bald eagles. Others are habitat for colonial nesting birds. Human activities can easily disturb these areas.

Undeveloped Islands

The vast majority of islands in the jurisdiction are undeveloped, and probably most will remain so in the near future due to environmental constraints, inaccessibility and ownership patterns and preferences.

But modern engineering, construction and transportation technologies allow many long-standing constraints to be overcome. And landowner patterns and preferences are subject to change.

Ross Island

Many smaller islands are held in trust or by older individuals who have preferred to keep them undeveloped. But as trusts are dissolved or land passed on to family members, island interests often are subdivided, making the potential for development much greater.

On small islands, even one house and associated uses can have an adverse impact on the island's limited resources. Impacts on bird habitat may be especially devastating. The majority of mapped sites for colonial nesting birds are on undeveloped islands, as are identified seal haulouts.

Another concern is the visual impact of new structures on the previously undeveloped island landscape. A new house located on an exposed bluff can be a highly intrusive addition that is visible not only from the island but also from points far out at sea.

Planning and Zoning Issues

Considering some of the unique characteristics of islands, the Commission's policies and regulations must recognize and protect island resources and address some of their special planning needs. Since island based industries are often water dependent, the Commission recognizes the need to accommodate such water dependent uses in its regulations. The Maritime Development Subdistrict established on Monhegan is an example of how the Commission can accommodate such uses.

On most islands, the first 250 feet from the ocean high water mark is zoned Shoreland Protection (P-SL1). This zoning allows buildings if they are located 75 feet back from the ocean on lots as small as 20,000 square feet with 150 feet of ocean frontage. While these standards may be suitable for some islands with existing development, they may lead to relatively high densities that are inappropriate for smaller or undeveloped islands.

The potential increase in timber harvesting on islands has a number of planning and zoning implications. Changes in island landscapes resulting from harvests often evoke public concern, and the Commission is likely to field complaints regarding future logging operations. Although harvesting is allowed without a permit in General Management (M-GN) zones, the Commission encourages those contemplating harvesting operations to work cooperatively with interested parties.

The Commission has determined that a permit is needed for transporting logs through island shoreland districts. This requirement is appropriate in order to minimize adverse impacts on the island and ocean environment, but should not unnecessarily impede harvesting operations. The Commission recognizes the unique nature of timber harvesting on coastal islands in that, with the shoreland protection district encompassing the island, there may be little management zone left within which the landowner has maximum flexibility for managing timber stands.

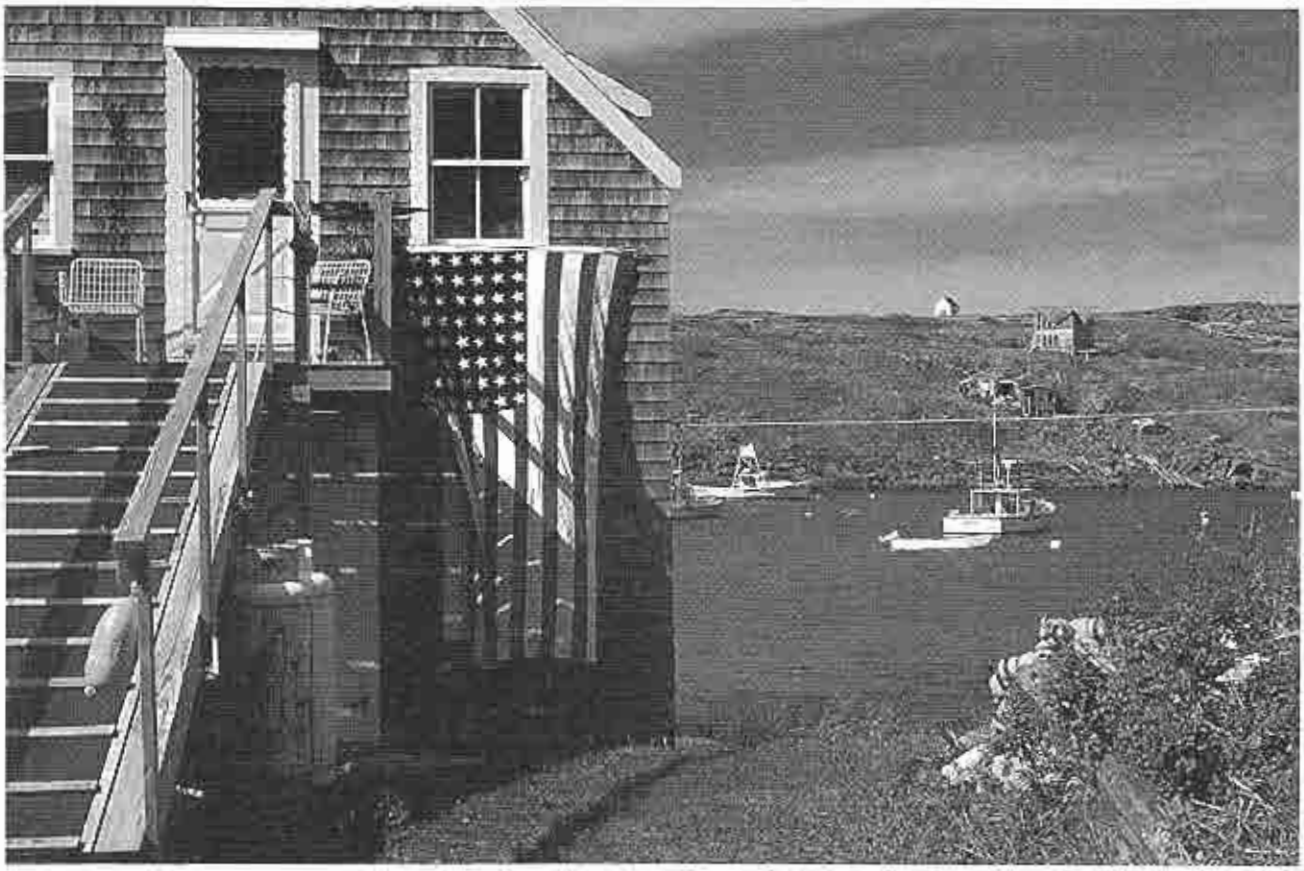
Many island dwellings were constructed prior to 1971, and have lot sizes and shore setbacks considerably less than the Commission's standards. The Commission allows for continuation and, in some instances, modest expansion of these structures, but it strives to ensure that these uses do not have adverse impacts on the island or ocean environment. As the Commission revises its rules on nonconforming uses and structures, it will consider situations typical on islands.

Road setback requirements on islands also deserve reexamination. Many island roads are no more than unimproved byways or footpaths, and

even the more substantial roads see little motorized traffic. Requiring the usual setback in these instances may not be reasonable.

The Commission may also need to reexamine how its adjacency criterion is applied to islands. On mainland areas the distance between two developments might be viewed as small; on islands this same distance may exceed the diameter of the island. To avoid sprawl outside of island village areas, a very small adjacency threshold may be needed.

The goal of compact development itself may not be desirable on some islands, where a more dispersed settlement pattern is needed to avoid groundwater problems. Clustered development, often promoted by the Commission in waterfront areas, may be appropriate in some island settings but not in others.



Monhegan & Manana Islands

and relatively easy access via Route 9, and within roughly 25 miles of Ellsworth and 35 miles of the Bangor/Brewer urban area;

- *T41 MD* (52 new building permits and 68 new approved subdivision lots), with Nicatous Lake, and approximately 40 miles east of Orono/Old Town;
- *No.21 Township* (126 new approved subdivision lots and 28 new building permits) on Big Lake in Eastern Washington County; and
- *Baring Plantation* (43 new building permits), adjacent to Calais and containing Meddybemps Lake as a draw.

Eastern Aroostook Region:

A number of communities in close proximity to major population centers in Aroostook County have experienced higher than average growth rates between 1971 and 1991, including *Connor Township and Caswell* (158 new building permits). Nearby Caribou and Limestone employed 182 and 139 jurisdiction residents respectively in 1990. The closing of the military base in Limestone may affect future demand for housing in these communities and neighboring areas.

Cary Plantation on the outskirts of Houlton and within 10 miles of a major system of lakes bordering Maine and New Brunswick, has also experienced moderate growth (62 new building permits). Houlton is a nearby employment center (major industries are wood products and food-related) for jurisdiction residents, employing 122 according to the 1990 Census.

Two other communities have had notable development drawn by recreational attractions: *Winterville Plantation* (62 new building permits) with St. Froid Lake, less than 25 miles from Fort Kent; and *Mount Chase* (119 new building permits and 63 new approved subdivision lots), located near Patten, with scenic mountains and lakes.

Coastal Islands

Compared with high-growth inland areas, coastal islands under the Commission's jurisdiction experienced modest rates of development between 1971 and 1991. These islands, nonetheless, deserve special consideration due to the high value and fragility of their natural resources and their attractiveness for future seasonal development. Even a relatively low rate of development can have a significant impact on island resources or landscapes.

The most building activity has occurred on the two islands with year-round populations: Monhegan and Matinicus Plantations. During the 1971-1991 period, 18 building permits were issued for new dwellings on Monhegan, 12 on Matinicus. Of islands with only seasonal populations, those with the most housing activity were Pleasant Island (10 permits), Hewitt Island (6 building permits) and Great Pond or Inner Island (4 building permits). A 12-lot subdivision was approved for Louds Island, and a Resource Plan for Metinic Island authorized 14 houses on the northern end of the island.

Planning for Development in these Areas

Development is likely to continue in most of the areas identified above due to the attractiveness of their high value resources and their general accessibility. In planning for future development, the Commission will strongly focus on these areas, particularly on high-value areas with the greatest growth potential.

The challenge for the Commission is to allow growth to be accommodated in these areas without compromising the resources that make them so special. Balancing development and conservation in these areas is the key to maintaining their high values, particularly their recreational appeal. A more specialized and localized planning and zoning approach is appropriate in these instances, and is discussed in the next section.

Specific Goals and Policies of the Commission

The Commission's actions shall be guided by the following goals and policies:

I Natural Resources

A. Agricultural Resources (issue discussion page 23)

Goal. Conserve and protect farmlands and other agricultural resources.

Policies:

1. Discourage land use which can be destructive of prime, highly productive and other significant farmlands, and encourage agricultural management in appropriate areas.
2. Regulate agricultural practices which can cause accelerated erosion, sedimentation or pollution in order to protect soil and water resources.
3. Discourage activities which are incompatible with existing agricultural enterprises.
4. Encourage the use of Maine's best management practices for agriculture.

B. Air Resources (issue discussion page 26)

Goal: Protect and enhance the quality of air resources throughout the jurisdiction.

Policies:

1. Require compliance with all state and federal air quality standards; require compliance with more stringent standards where necessary to preserve the air quality or unique values of identified sensitive areas, or to improve the air quality of identified nonattainment areas.
2. Encourage state, federal and international initiatives directed at reducing emissions of air pollutants.
3. Encourage and monitor research on the effects of air pollutants on forest health and productivity.

C. Coastal Resources (issue discussion page 29)

Goal: Protect and conserve the special scenic, recreational, ecological, historic and other natural and cultural resources of coastal islands, and promote the traditional resource-based economies of these areas.

Policies.

1. Encourage and support marine-dependent activities that are compatible with traditional resource-based economies, island ecosystems and other island values.
2. Encourage the maintenance of traditional public access points to the shore.
3. Discourage the construction of dwellings or improvements on undeveloped islands with high natural or scenic values.
4. For construction that does take place on islands, encourage buildings of a scale, design and location appropriate to protecting natural and scenic values.
5. Emphasize the concepts of environmental and community carrying capacity in island land use planning and review of proposed projects.
6. Except for commercial uses compatible with traditional resource-based economies, discourage the construction of permanent docks and piers, and promote the use of common temporary docking areas.
7. Ensure that LURC's rezoning and development review standards are appropriate to islands given their special characteristics and constraints.
8. Address the cumulative impacts of incremental island development, using strategies such as Resource Plan zoning or encouraging development proposals that provide for permanent conservation of island lands.
9. Encourage the use of voluntary land conservation measures such as conservation easements and cooperative management agreements to protect the special resources of islands.

formula for identifying water quality limiting lakes is rudimentary and understands the need to update its approach to review of impacts on water quality. To meet this need, Commission staff will continue to work with staff of the Department of Environmental Protection to develop a systematic approach to protecting water quality, one which more accurately reflects the current level of knowledge about the relationship between land use and lake water quality.

Sludge Spreading

Sludge, a residual of paper making, is spread on forestlands within the Commission's jurisdiction. Pursuant to a 1989 amendment to its rules, the Commission prohibits such spreading in certain environmentally sensitive areas and requires a permit for spreading in other sensitive areas. However, in the vast majority of its jurisdiction in Management Subdistricts, the Commission does not require a permit for such activities provided they comply with applicable regulations of the Maine Department of Environmental Protection (DEP). The Commission adopted these rule changes with the understanding that it would revisit the issue upon completion of an industry sponsored study of the effects of sludge spreading. The sludge research program has not produced usable results, and the Research Advisory Committee established to oversee the program dissolved due to dissatisfaction with the program's methods and progress. DEP has indicated an intent to see that this work continue in some form.

The Commission will monitor DEP's efforts in this regard and will consider limiting sludge spreading if it appears that potential risks cannot be controlled and risks associated with this practice clearly outweigh the benefits.

6

Types of Development Zones

The Commission's standards describe five kinds of development zones, all of which are designed around the principle of separation of incompatible land uses. Experience suggests that the Commission may want to consider some special Development zones including:

(1) a new commercial zone that would provide for an intermediate level of commercial activity between that provided for in the General Development Subdistrict and the Commercial Industrial Subdistrict.

(2) village areas where special standards could be applied to facilitate compact development;

(3) remote development, such as sporting camps, which would recognize the special needs of such facilities; and

(4) solid waste disposal facilities and their need to be separate from existing developed areas and other incompatible uses.

Coastal Islands

The Commission recognizes that land use planning on coastal islands may need to be refined to recognize their special nature. For example, cluster development, while appropriate on mainland areas, may be inappropriate on some coastal islands because such compact development may threaten fragile fresh water sources. Road setbacks may be unnecessary or greatly reduced on islands due to the nature of their roadways. Also, special zoning may be appropriate for coastal islands – for example, the Commission earlier determined that it was appropriate to encourage water dependent commercial activities by establishing a Maritime Development Subdistrict within its regulations.[4]

Natural Resources Protection Act (NRPA)

In 1992, the Legislature directed the Commission to consider the procedures and related issues of developing consistent standards for implementing the Natural Resources Protection Act (at that time implemented by the Maine Department of Environmental Protection statewide) within the jurisdiction and to begin mapping freshwater wetlands within these areas.

In response to that directive, the Commission has initiated a cooperative effort with the U.S. Fish and Wildlife Service to improve upon the National Wetland Inventory which has inventoried and mapped wetlands for the Commission's jurisdiction. In response to Commission recommendations, the Legislature has exempted deer wintering areas, fragile mountain areas, seabird nesting islands, and shorelands of great ponds, rivers, streams and brooks within the jurisdiction from duplicative NRPA regulation.

In 1995, the Legislature amended NRPA and streamlined the wetland permitting process. The Commission will initiate an effort to amend its wet-

[4]More discussion on pages 29-33 of this plan